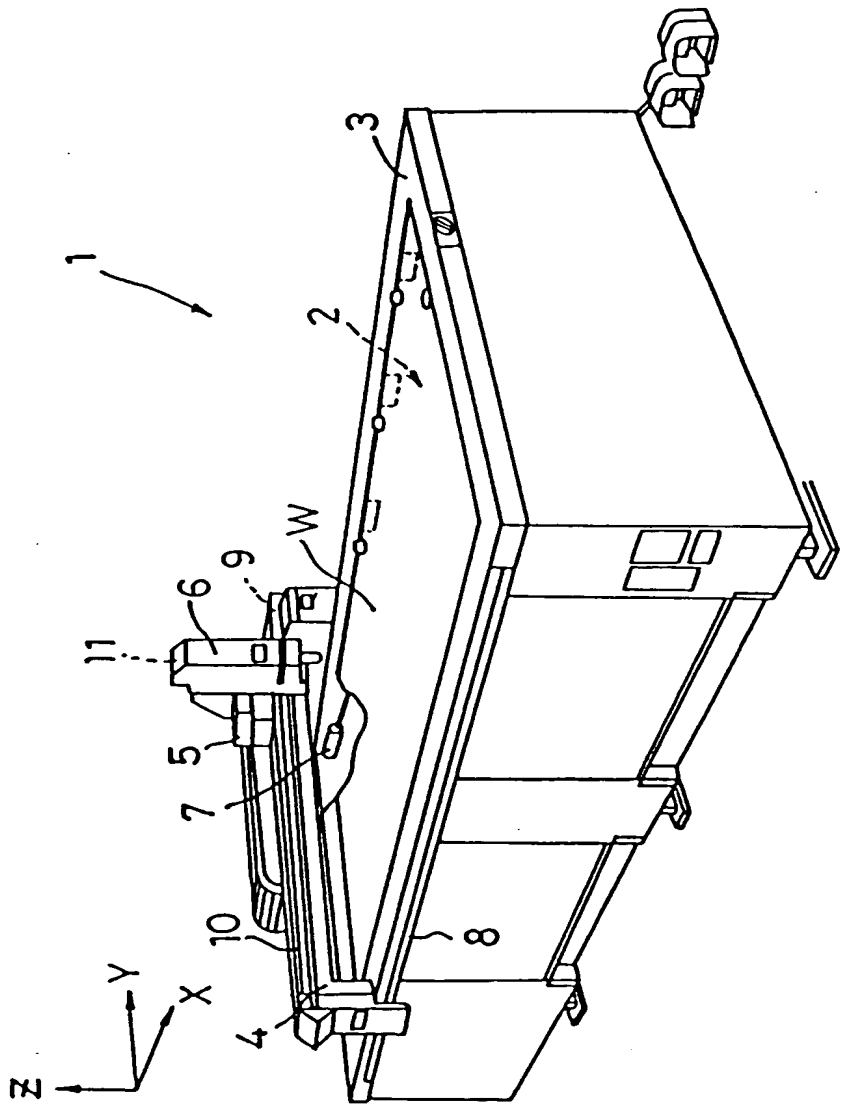


FIG. 1

FIG. 2

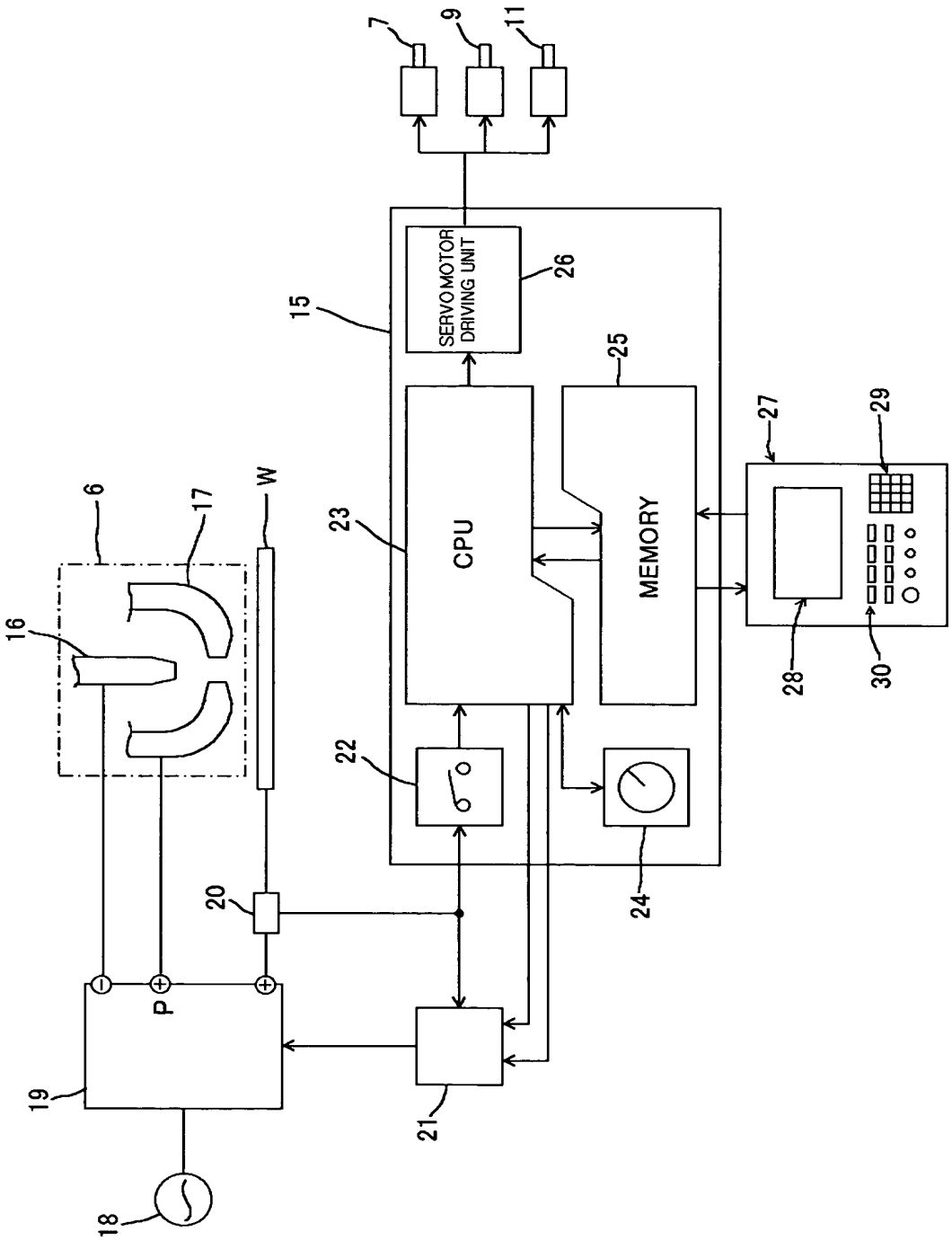

7
9
11
SERVO MOTOR DRIVING UNIT
26
15
25
27
29
CPU
MEMORY
23
6
17
W
16
22
20
24
28
30
P
19
21
18

FIG. 3

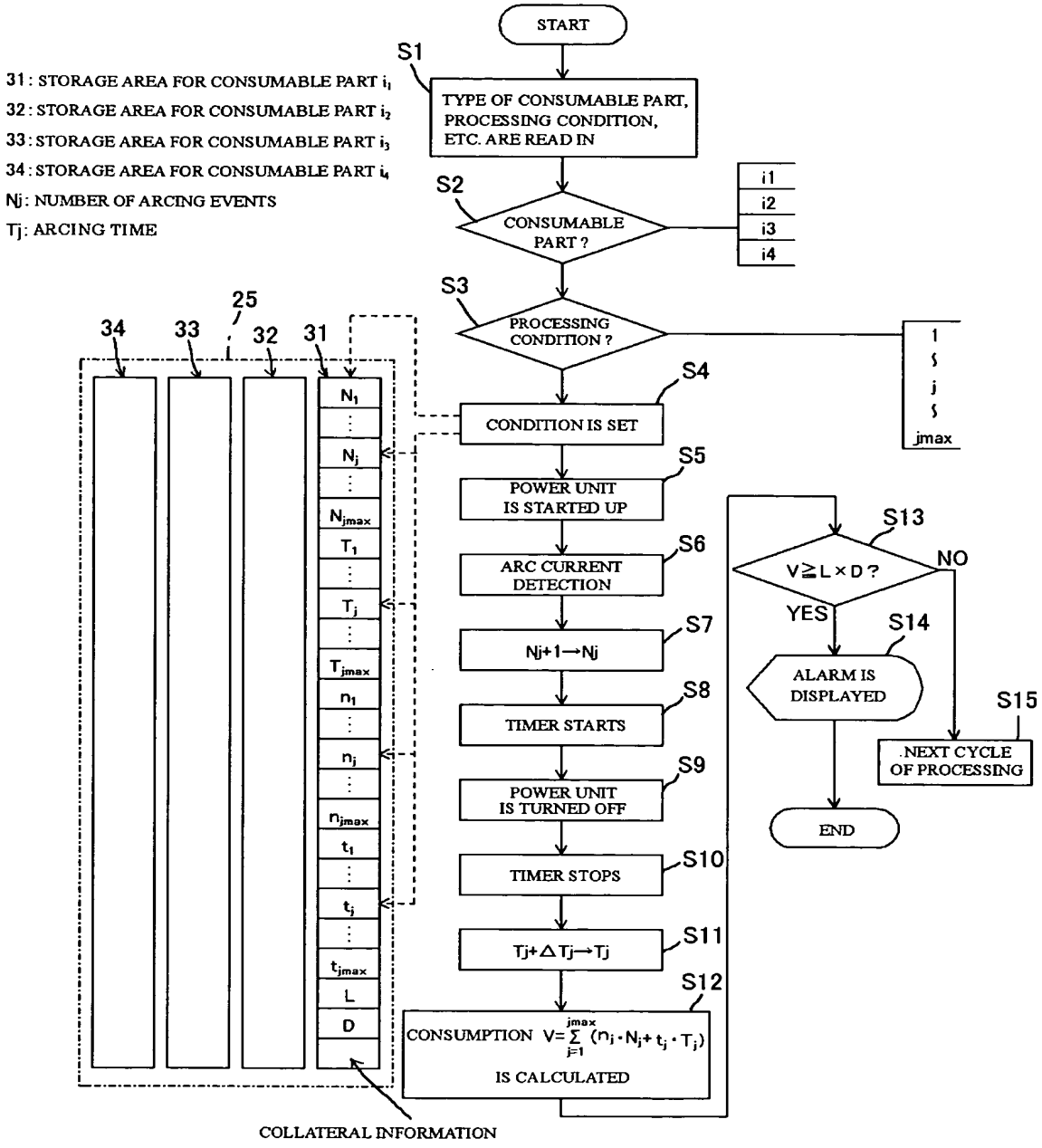
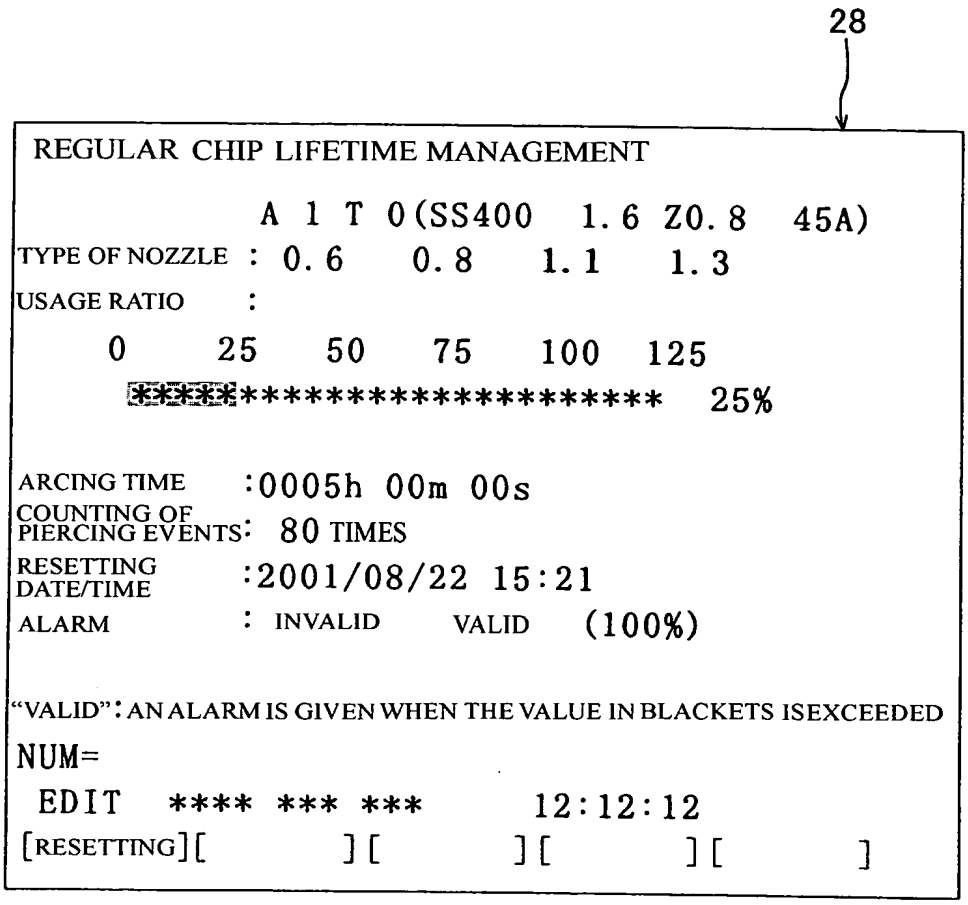

31 : STORAGE AREA FOR CONSUMABLE PART i_1
32 : STORAGE AREA FOR CONSUMABLE PART i_2
33 : STORAGE AREA FOR CONSUMABLE PART i_3
34 : STORAGE AREA FOR CONSUMABLE PART i_4
Nj : NUMBER OF ARCING EVENTS
Tj : ARCING TIME
START
S1
TYPE OF CONSUMABLE PART, PROCESSING CONDITION, ETC. ARE READ IN
S2
CONSUMABLE PART ?
i1
i2
i3
i4
S3
PROCESSING CONDITION ?
1
j
jmax
S4
CONDITION IS SET
S5
POWER UNIT IS STARTED UP
S6
ARC CURRENT DETECTION
S7
Nj+1→Nj
S8
TIMER STARTS
S9
POWER UNIT IS TURNED OFF
S10
TIMER STOPS
S11
Tj+ΔTj→Tj
S12
CONSUMPTION $V=\sum_{j=1}^{jmax}(n_j \cdot N_j + t_j \cdot T_j)$ IS CALCULATED
S13
V≧L×D ?
NO
YES
S14
ALARM IS DISPLAYED
S15
NEXT CYCLE OF PROCESSING
END
25
34
33
32
31
N_1
N_j
N_{jmax}
T_1
T_j
T_{jmax}
n_1
n_j
n_{jmax}
t_1
t_j
t_{jmax}
L
D
COLLATERAL INFORMATION

FIG. 4


28
REGULAR CHIP LIFETIME MANAGEMENT
A 1 T 0(SS400 1.6 Z0.8 45A)
TYPE OF NOZZLE : 0.6 0.8 1.1 1.3
USAGE RATIO :
0 25 50 75 100 125
25%
ARCING TIME :0005h 00m 00s
COUNTING OF PIERCING EVENTS: 80 TIMES
RESETTING DATE/TIME :2001/08/22 15:21
ALARM : INVALID VALID (100%)
"VALID": AN ALARM IS GIVEN WHEN THE VALUE IN BLACKETS ISEXCEEDED
NUM=
EDIT **** *** *** 12:12:12
[RESETTING][ ][ ][ ][ ]